

AbstractBeam Steering Apparatus

Embodiments of the invention are concerned with beam steering
5 apparatus comprising:

an antenna array having a plurality of antenna elements, the antenna elements being spatially arranged with respect to one another and being operable to receive signals;

10 signal modulating means comprising a plurality of optical modulators, each of which is associated with a different one of the antenna elements and operable to modulate signals received thereby onto a different respective optical carrier;

15 delay means arranged to apply an amount of delay to modulated optical signals passing therethrough in respect of one or more of the antenna elements;

demultiplexing means operable to separate the modulated optical carriers within an optical signal output by the delay means;

demodulating means operable to demodulate the signal received by each antenna element from the respective separated modulated optical carrier; and

20 combining means operable to combine the demodulated received signals output by the demodulating means,

wherein the delay means comprise:

25 a plurality of first delay units, each of which is associated with a different one of the antenna elements and is operable to apply selectively either a first amount of delay or a second amount of delay to the respective modulated optical signal passing therethrough; and

a plurality of second delay units, each of which is linked in series to at least one of the first delay units and is operable to apply selectively

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either a third amount of delay or a fourth amount of delay to modulated optical signals passing therethrough,

and wherein at least one of said second delay units is connected in series to at least two of the first delay units.

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Figure 4